PLUMBING SYMBOLS, ABBREVIATIONS AND SCHEDULES

PLUMBING SYMBOLS & ABBREVIATIONS

ABBREV	DESCRIPTION
	TYPICAL PIPELINE WITH PIPE SIZE, FLOW DIRECTION AND NATURAL GAS CALL-OUT SHOWN (2" G)
SS	SANITARY DRAINAGE PIPING BELOW FLOOR OR GRADE
SS	SANITARY DRAINAGE PIPING ABOVE FLOOR
V	VENT
CW	COLD WATER (POTABLE)
HW	HOT WATER
HWR	HOT WATER RETURN
GV	GATE VALVE
BV	BUTTERFLY VALVE
BFP	REDUCED PRESSURE TYPE BACKFLOW PREVENTER
CV	CHECK VALVE
GLV	GLOBE VALVE
BL V	BALL VALVE
PV OR GC	PLUG VALVE OR GAS COCK
HB	HOSE BIBB
UN	UNION
WHA	WATER HAMMER ARRESTOR
FD	FLOOR DRAIN
FS	FLOOR SINK
RD	ROOF DRAIN
ORD	OVERFLOW ROOF DRAIN
	REDUCER/INCREASER
ESEW	EMERGENCY SHOWER AND EYEWASH
CP	IN-LINE CIRCULATING PUMP
PRV	PRESSURE REGULATING VALVE
BLV	BALANCING VALVE (FLOW CONTROL)
PG	PRESSURE GAGE W/ GAGE COCK
TH	THERMOMETER
RV	PRESS RELIEF/PRESS & TEMP RELIEF VALVE
STR	STRAINER
	SLOPE DOWN IN DIRECTION OF ARROW
FCO OR COTG	FLOOR CLEANOUT OR CLEANOUT TO GRADE
CO	CLEANOUT
WCO	WALL CLEANOUT
	PIPE UP OR PIPE UP & DOWN
	PIPE DOWN OR PIPE FROM BELOW
	DIRECTION OF FLOW
FW	FIRE WATER
	OS & Y GATE VALVE (OUTSIDE SCREW AND YOKE WITH TAMPER SWITCH)
FHC	FIRE HOSE CABINET
M	MANUAL FIRE ALARM STATION
FACP	FIRE ALARM CONTROL PANEL
S P	PHOTOELECTRIC SMOKE DETECTOR

ABBREV	DESCRIPTION
ABV	ABOVE
A	COMPRESSED AIR
AP	ACCESS PANEL
AV	ACID VENT
AC	ACETYLENE
ASME	AMERICAN SOCIETY OF MECHANICAL ENGINEERS
ARCH	ARCHITECTURAL
@	AT
AW	ACID WASTE
BEL	BELOW
BOP	BOTTOM OF PIPE
BTUH	BRITISH THERMAL UNITS PER HOUR
CLG	CEILING
CONN	CONNECT/CONNECTION
CONT	CONTINUE/CONTINUATION
CWV	COMBINATION WASTE AND VENT
CFH	CUBIC FEET PER HOUR
CFM	CUBIC FEET PER MINUTE
DE	DEIONIZED WATER
DIA	DIAMETER
DI	DISTILLED WATER
DN	DOWN
D	DRAIN-INDIRECT
DWG	DRAWING
ELEC	ELECTRIC/ELECTRICAL
EL	ELEVATION
EMG	EMERGENCY
FIN	FINISHED
FF	FINISHED FLOOR
FL	FLOOR
FR	FROM
FT	FOOT/FEET
FV	FLUSH VALVE
GPM	GALLONS PER MINUTE
GPH	GALLONS PER HOUR
HCP	HANDICAPPED
HD	HEAD
HZ	HERTZ
HP	HORSEPOWER
HVAC	HEATING, VENTILATING & AIR CONDITIONING
HDR	HEADER
ICW	INDUSTRIAL COLD WATER
IN	INCH/INCHES
IE	INVERT ELEVATION
INT	INTEGRAL
KW	KILOWATT
MH	MANHOLE
MAX	MAXIMUM
MG	MEDIUM PRESSURE GAS
MIN	MINIMUM
MTD	MOUNTED
NTS	NOT TO SCALE
NO	NORMALLY OPEN
NC	NORMALLY CLOSED
OW	OILY WATER
PSI	POUNDS PER SQUARE INCH
PD	PUMP DISCHARGE
POC	POINT OF CONNECTION
PH	PHASE
RO	REVERSE OSMOSIS WATER
RPM	REVOLUTION PER MINUTE
RI & C	ROUGH-IN AND CONNECT
RM	ROOM
SHT	SHEET
SCW	SOFT COLD WATER
SCFM	STANDARD CUBIC FEET PER MINUTE
SD	STORM DRAIN
TEMP	TEMPERATURE
TW	TEMPERED WATER
TPV	TRAP PRIMER VALVE
TYP	TYPICAL
TPL	TRAP PRIMER LINE
TOC	TOP OF CONCRETE
VAC	VACUUM
VC	VACUUM CLEANING
VTR	VENT THROUGH ROOF
V	VENT
VTW	VENT THRU WALL
W/	WITH
WC	WATER COLUMN

PLUMBING FIXTURE SCHEDULE

ITEM NO.	DESCRIPTION	DRAIN	TRAP	VENT	HW	CW	REMARKS
WC-1	WATER CLOSET	4"	INT	2"	—	$1\frac{1}{4}$"	FL MTD-FV
WC-2	WATER CLOSET	4"	INT	2"	—	$1\frac{1}{4}$"	FL MTD-FV-HCP
WC-3	WATER CLOSET	—	—	6"	—	—	PROPANE INCINERATION TYPE (FOR END STATIONS ONLY)
UR-2	URINAL	2"	INT	$1\frac{1}{2}$"	—	1"	WALL MTD-FV-HCP
L-1	LAVATORY	2"	$1\frac{1}{4}$"X$1\frac{1}{2}$"	$1\frac{1}{2}$"	$\frac{1}{2}$"	$\frac{1}{2}$"	WALL MTD-HCP
SS-1	SERVICE SINK	3"	3"	2"	$\frac{1}{2}$"	$\frac{1}{2}$"	WALL MTD
MS-1	MOP SINK	3"	3"	2"	$\frac{1}{2}$"	$\frac{1}{2}$"	FLOOR MTD
SH-1	SHOWER	2"	2"	$1\frac{1}{2}$"	$\frac{1}{2}$"	$\frac{1}{2}$"	W/PRESSURE-BALANCE MIXING VALVE-HCP
ESEW-1	EMG SH & EYEWASH UNIT	—	—	—	—	$1\frac{1}{4}$"	COMBINATION UNIT
EWC-1	ELECTRIC WATER COOLER	2"	$1\frac{1}{4}$"X$1\frac{1}{2}$"	$1\frac{1}{2}$"	—	$\frac{1}{2}$"	WALL MTD-HCP
KS-1	KITCHEN SINK	2"	$1\frac{1}{2}$"	$1\frac{1}{2}$"	$\frac{1}{2}$"	$\frac{1}{2}$"	COUNTER TOP MTD, TWO COMPARTMENT, W/ WASTE DISPOSER
CS-1	CUP SINK	2"	$1\frac{1}{2}$"	$1\frac{1}{2}$"	—	$\frac{1}{2}$"	RI & C
HB-1	HOSE BIBB	—	—	—	—	$\frac{3}{4}$"	W/VACUUM BREAKER
HB-2	HOSE BIBB	—	—	—	—	$\frac{3}{4}$"	NON-FREEZE W/VACUUM BREAKER
FD-1	FLOOR DRAIN	2"/3"	2"/3"	2"/$1\frac{1}{2}$"	—	—	BRONZE STRAINER W/TRAP PRIMER
FD-2	FLOOR DRAIN	3"	3"	2"	—	—	
FD-3	FLOOR DRAIN	2"	2"	2"/$1\frac{1}{2}$"	—	—	
FS-1	FLOOR SINK	2"/3"	2"/3"	2"/$1\frac{1}{2}$"	—	—	ENAMELED CAST IRON W/TRAP PRIMER
S-1	SINK	3"	3"	2"	$\frac{1}{2}$"	$\frac{1}{2}$"	SINGLE COMPARTMENT, COUNTER TOP MTD, STAINLESS STEEL
UR-1	URINAL	2"	INT	$1\frac{1}{2}$"	—	1"	WALL MTD - FV

ELECTRIC WATER HEATER SCHEDULE

UNIT NO.	LOCATION	KW INPUT	VOLTS/PH/HZ	STORAGE CAP (GAL)	RECOVERY GPH @ 80°F ΔT	INLET TEMP (°F)	OPER WT (LB)	MANUFACTURER/ MODEL NO.	REMARKS
L-CS-149-WH-01	STORAGE ROOM	3	480/3/60	20	20	40		A. O. SMITH MODEL NO. DEL 15	
L-CS-136-WH-02	JANITOR'S ROOM	8	480/3/60	50	41	40		A. O. SMITH MODEL NO. DEN-52	
L-CS-136-WH-03	LVEA	1.5	208/1/60	10	8	40		A. O. SMITH MODEL NO. ELSF-10	
L-CS-136-WH-04	LVEA	1.5	208/1/60	10	8	40		A. O. SMITH MODEL NO. ELSF-10	
L-CS-136-WH-05	LVEA	1.5	208/1/60	10	8	40		A. O. SMITH MODEL NO. ELSF-10	
L-CS-136-WH-06	LVEA	1.5	208/1/60	10	8	40		A. O. SMITH MODEL NO. ELSF-10	

PUMP SCHEDULE

UNIT NO.	LOCATION	SERVICE	TYPE	FLUID PUMPED	MAX FLUID TEMP (°F)	GPM	TOTAL HEAD (FT)	NPSH (FT)	MOTOR HP	MOTOR VOLTS/ PH/HZ	MOTOR RPM	MOTOR TYPE	OPER WT (LB)	MANUFACTURER/ MODEL NO.	REMARKS
L-CS-195-FP-01	MAINTENANCE BLDG	FIRE WATER	HORIZONTAL	WATER	100	1000	175		75	480/3/60	1800	326TS		PATTERSON PUMP/6X5M	
L-CS-195-FP-02	MAINTENANCE BLDG	FIRE WATER	HORIZONTAL	WATER	100	1000	175		75	480/3/60	1800	326TS		PATTERSON PUMP/6X5M	
L-CS-195-JP-03	MAINTENANCE BLDG	FIRE WATER	CENTRIFUGAL	WATER	100	10	186		$1\frac{1}{2}$	480/3/60				PATTERSON PUMP/CR2-50U	
L-CS-196-DP-04	MAINTENANCE BLDG	DOMESTIC WATER	CENTRIFUGAL	WATER	100	60	190		5	480/3/60	3500			PACO PUMP/VM9112T SERIES 9000	
L-CS-196-DP-05	MAINTENANCE BLDG	DOMESTIC WATER	CENTRIFUGAL	WATER	100	60	190		5	480/3/60	3500			PACO PUMP/VM9112T SERIES 9000	

WATER STORAGE TANK

UNIT NO.	LOCATION	SERVICE	STORAGE CAP (GAL)	CONSTRUCTION PRESSURE (PSIG)	OPERATING PRESSURE (PSIG)	RELIEF VALVE SETTING (PSIG)	CONSTRUCTION	SIZE DIA (IN)	SIZE H (IN)	SIZE OPER. WT. (LB)	MANUFACTURER/ MODEL NO.	REMARKS
L-MA-203-WT-01	MID STN A	HUMIDIFIERS/ DOMESTIC	1,000	125	30	45	CARBON STEEL GLASS LINED	42	168	11,000		ASME STAMPED
L-MB-203-WT-01	MID STN B											
L-EA-203-WT-01	END STN A											
L-EB-203-WT-01	END STN B											

GENERAL NOTES

1. REFER TO ARCHITECTURAL DRAWINGS FOR EXACT FIXTURE LOCATIONS AND MOUNTING HEIGHTS.
2. UTILITIES TERMINATE 5'-0" FROM BUILDING, FOR CONTINUATION SEE CIVIL DRAWINGS.
3. PROVIDE TRAP PRIMERS FOR ALL FLOOR DRAINS AND FLOOR SINKS.
4. FURNISH AND INSTALL ALL AUXILIARY STEEL REQUIRED TO PROVIDE FOR THE PROPER SUPPORT OF ALL INTERIOR AND EXTERIOR PIPING.
5. ANY PIPE PENETRATING FIRE RATED WALLS OR FLOORS SHALL HAVE THE ANNULAR SPACE BETWEEN PIPE AND SLEEVE OR CORE DRILLED HOLE FILLED WITH AN APPROVED MATERIAL THAT WILL RETURN THE PENETRATION TO THE ORIGINAL RATING.
6. ALL FIXTURES AND HOSE BIBBS SHALL BE PROVIDED WITH WATER HAMMER ARRESTORS. AIR CHAMBERS WILL NOT BE PERMITTED.
7. FIRE HOSE CABINETS SHALL BE PROVIDED WITH $1\frac{1}{2}$" NST FIRE DEPARTMENT CONNECTIONS.

LIGO-D961046-01-O

NO.	DATE	BY	CHKD	ENGR	PROJ	DESCRIPTION
1	8-7-98	DJB				ISSUED FOR AS-BUILT

REFERENCES: DRAWING NO. | DESCRIPTION

ISSUED FOR CONSTRUCTION (0)		
DRAWN	DG	11-15-96
CHECKED	ME	10-25-96
ENGINEER	AA	10-25-96
PROJ	TDM	11-15-96

AS-BUILT DRAWINGS

PARSONS
100 WEST WALNUT STREET
PASADENA, CALIFORNIA

LIGO
CALIFORNIA INSTITUTE OF TECHNOLOGY
MASSACHUSETTS INSTITUTE OF TECHNOLOGY

LASER INTERFEROMETER GRAVITATIONAL-WAVE OBSERVATORY
SITE NO. 2 - LIVINGSTON, LOUISIANA

TITLE: PLUMBING SYMBOLS & ABBREVIATIONS, FIXTURES SCHEDULES & GENERAL NOTES

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